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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/528,171

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Timothy John Andrew Finnigan

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NIXON & VANDERHYE, PC

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EXAMINER

DEES, NIKKI H

ART UNIT

PAPER NUMBER

1794

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PAPER

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

<b>Office Action Summary</b>	<b>Application No.</b> 10/528,171	<b>Applicant(s)</b> FINNIGAN ET AL.	
	<b>Examiner</b> Nikki H. Dees	<b>Art Unit</b> 1794	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 19 October 2005.
- 2a) ☐ This action is **FINAL**.                      2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 1-22 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-22 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All    b) ☐ Some \*    c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☒ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- |                                                                                        |                                                                   |
|----------------------------------------------------------------------------------------|-------------------------------------------------------------------|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)            | 4) <input type="checkbox"/> Interview Summary (PTO-413)           |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)   | Paper No(s)/Mail Date. _____                                      |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date <u>17 March 2005, 16 August 2006</u> .                           | 6) <input type="checkbox"/> Other: _____                          |

## **DETAILED ACTION**

### ***Specification***

1. The abstract of the disclosure is objected to because of the following informalities: line 4, change "order" to "other". Correction is required. See MPEP § 608.01(b).

### ***Claim Objections***

2. Claim 1 objected to because of the following informalities: claim 1 claims a filamentous fungus and a proteinaceous material. It is noted that a filamentous fungus is considered to be a proteinaceous material. Clarification that a second proteinaceous material is required, in addition to the filamentous fungus, is suggested.
3. Claim 4 is objected to because of the following informalities: aspect ratio does not have units. Appropriate correction is required.

### ***Claim Rejections - 35 USC § 112***

4. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

5. Claims 21 and 22 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

6. Claim 21 is to a method of making a foodstuff with a composition “according to as defined above [sic].” It is unclear what Applicants are referring to as being “defined above.” For purposes of examination, the claim will be interpreted as to contacting the composition of claim 18 with further edible components.

7. Claim 22 provides for the use of filamentous particles, but, since the claim does not set forth any steps involved in the method/process, it is unclear what method/process applicant is intending to encompass. A claim is indefinite where it merely recites a use without any active, positive steps delimiting how this use is actually practiced.

### ***Claim Rejections - 35 USC § 101***

8. 35 U.S.C. 101 reads as follows:

Whoever invents or discovers any new and useful process, machine, manufacture, or composition of matter, or any new and useful improvement thereof, may obtain a patent therefor, subject to the conditions and requirements of this title.

Claim 22 is rejected under 35 U.S.C. 101 because the claimed recitation of a use, without setting forth any steps involved in the process, results in an improper definition of a process, i.e., results in a claim which is not a proper process claim under 35 U.S.C. 101. See for example *Ex parte Dunki*, 153 USPQ 678 (Bd.App. 1967) and *Clinical Products, Ltd. v. Brenner*, 255 F. Supp. 131, 149 USPQ 475 (D.D.C. 1966).

***Claim Rejections - 35 USC § 102***

9. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

10. Claims 1, 6, 12, 13, 16, 18 and 21 are rejected under 35 U.S.C. 102(b) as being anticipated by Hogan et al. (4,800,093).

11. Hogan et al. teach a composition comprising filamentous fungal particles and a protein material (chicken) wherein the ratio of dry matter basis of the protein to the dry matter basis of the fungal material is greater than 1. Example 2 shows the wet weight percentages of the ingredients. Information in col. 8 lines 60-68 and col. 9 lines 1-3 was used to determine an approximate ratio of the dry weight of protein to dry weight of fungal matter in the composition of about 20:1. These teachings anticipate Applicant's claims 1, 12, 13, and 18.

12. Protein from chicken is considered to be a natural source, anticipating Applicant's claim 6.

13. In regard to claim 16, the fungal biomass and protein are mixed in the presence of water (Example 2).

14. A method of making the foodstuff is also taught (Example 2), anticipating Applicant's claim 21.

***Claim Rejections - 35 USC § 103***

20. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

21. Claims 1-22 are rejected under 35 U.S.C. 103(a) as being unpatentable over Darke (6,579,562) in view of Nigam (Nigam, P. 2000. "Mycelial Fungi." Encyclopedia of Food Microbiology. Vols. 1-3. Robinson et al., Eds. Academic Press. pp. 2034-2044).

22. Darke teaches an extruded vegetable protein product that also contains soluble proteins. The extruded protein includes wheat gluten (Example 1), a cereal protein of natural origin. The soluble protein may be fungal protein (col. 1 lines 41-45). The fungal protein is contacted with the proteinaceous material in the presence of water (col. 1 lines 29-45). The invention may comprise 0.5-3.5 % fungal protein (based on amount reported for soya protein in Example Formulation), about 30-50 wt % proteinaceous material and water at about 40 to 65 % (Example Formulation). The invention is cooked by steam cooking (col. 2 lines 47-54).

23. Nigam teaches filamentous fungus as a fungal protein (mycoprotein) in the form of fungal mycelia (p. 2035). The filament length ranges from 400 to 700  $\mu\text{m}$  and diameter of 3-5  $\mu\text{m}$  (p. 2042), resulting in an aspect ratio ranging from about 80 to 233.

Art Unit: 1794

24. It would have been obvious to one of ordinary skill in the art at the time the invention was made to have utilized the fungal mycelia as taught by Nigam in the invention of Drake. Fungal protein, as shown by Nigam, is known to be incorporated in many different types of foodstuffs. One of ordinary skill would have found it obvious to try fungal mycelia as the fungal protein for inclusion in the invention of Drake. This would not have required undue experimentation on the part of the artisan, and there would have been a reasonable expectation that the resultant product would have maintained its desirable textural and organoleptic properties.

25. Regarding claims 5 and 7, Darke does not speak to the viscosity of the proteinaceous material when mixed with water, nor the solubility of the proteinaceous material in water at 25°C. However, given that Darke teaches wheat gluten as proteinaceous material in his invention, absent any convincing arguments or evidence to the contrary one of ordinary skill would expect these properties to be inherent in the wheat gluten as taught by Darke.

26. Regarding claim 11, while it is recognized that the phrase “consisting essentially of” narrows the scope of the claims to the specified materials and those which do not materially affect the basic and novel characteristics of the claimed invention, absent a clear indication of what the basic and novel characteristics are, “consisting essentially of” is construed as equivalent to “comprising”. Further, the burden is on the applicant to show that the additional ingredients in the prior art, i.e. soya protein or pea protein, would in fact be excluded from the claims and that such ingredients would materially change the characteristics of the applicant’s invention, See MPEP 2111.03.

27. Regarding claims 12-15, the invention of Darke may comprise 0.5 to 3.5% fungal protein (based on amount reported for soya protein in Example Formulation), about 30-50 wt % proteinaceous material and water at about 40 to 65 % (Example Formulation). It is unclear whether the weights reported by Darke are on a dry-weight basis.

However, the amount of wheat gluten (proteinaceous material) is much higher than the amount of fungal protein reported, indicating that the ratio of proteinaceous material to fungal protein would likely fall in the range as claimed by Applicants. Further, based on the numbers reported by Darke, the amount of proteinaceous material in the invention would be expected to be equal to or less than the amount of water used in the invention.

28. Regarding claims 19 and 20, the invention of Darke comprises gluten, fungal protein, vegetable fat, egg albumin (ovoprotein) and flavorings (Example Formulation). The specific amounts of fat and gluten are not disclosed, though overall they may comprise 30 to 50% of the composition. One of ordinary skill would have been able to determine appropriate amounts of fat and gluten for use in the invention through routine experimentation. The fungal protein may be present in an amount ranging from about 0.5 to 3.5% and the egg albumin may be present at about 1.5 to 7%.

29. Darke does not specifically teach onions as flavorings. However, one of ordinary skill in the art at the time the invention was made would have found it obvious to include onions as flavorings in the composition of Darke. Onions are long known in the art as food flavorings, and their inclusion in a savory product such as the one taught by Darke would be considered routine to one of ordinary skill.



Art Unit: 1794

30. Regarding claim 22, Darke teaches the presence of the fungal protein to reduce the tendency for water loss and absorption of the textured protein (comprising cereal protein) (col. 1 lines 29-40). Viscosity is not specifically mentioned. However, as the presence of the fungal protein helps to stabilize the product, it would be expected that this stabilization would include a reduction in the rate of increase of the viscosity.

### ***Conclusion***

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Nikki H. Dees whose telephone number is (571) 270-3435. The examiner can normally be reached on Monday-Friday 7:30-5:00 EST (second Friday off).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Carol Chaney can be reached on (571) 272-1284. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

Nikki H. Dees  
Examiner  
Art Unit 1794

/Carol Chaney/

Supervisory Patent Examiner, Art Unit 1794